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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/714,548	11/14/2003	William J. Benton	003259.87559	1716
28318	7590	10/19/2006		
BANNER & WITCOFF LTD., ATTORNEYS FOR CLIENT NO. 003259 28 STATE STREET - 28TH FLOOR BOSTON, MA 02109				
			EXAMINER FIGUEROA, JOHN J	
			ART UNIT 1712	PAPER NUMBER

DATE MAILED: 10/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/714,548	Applicant(s) BENTON ET AL.	
	Examiner John J. Figueroa	Art Unit 1712	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 July 2006.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13, 14, 17-20 and 44-46 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 13, 14, 17-20 and 44-46 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The double patenting rejection in item 10 on page 5 of the Office Action of February 27, 2006, hereinafter 'OA', has been overcome by the filing of a Terminal Disclaimer with the amendment/response filed July 27, 2006, hereinafter "Response".
2. The objections to the drawings, specification and the 35 U.S.C. 112, second paragraph rejection (items 11-14, 16 and 17 on pages 6-8 of OA have been withdrawn in view of Applicant's amendment to the drawings and claims in Response.
3. The 35 U.S.C. 102(b) rejection (item 19 on page 9 of OA) as anticipated by United States Patent Number (USPN) 4,536,297 to Loftin et al., hereinafter 'Loftin', has been withdrawn in view of Applicant's amendment to the claims in Response.
4. The 35 U.S.C. 103(a) rejection as unpatentable over USPN 5,620,947 to Elward-Berry, hereinafter 'Elward-Berry', and USPN 5,080,809 to Stahl et al., hereinafter 'Stahl', as further evidenced by USPN 5,008,025 to Hen, hereinafter 'Hen', is maintained for the reasons previously made of record in item 21 on page 12 of OA.
5. The 35 U.S.C. 103(a) rejection as unpatentable over Loftin in view of USPN 5,789,349 to Patel (item 22 on page 15 of OA) has been withdrawn in view of Applicant's amendment to the claims in Response.

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6. The 35 U.S.C. 103(a) rejection as unpatentable over USPN 6,124,244 to Murphey, hereinafter 'Murphey', and USPN 4,752,404 to Burns, hereinafter Burns, is maintained for the reasons previously made of record in item 23 on page 17 of OA.

Election/Restriction

7. Applicant's election with traverse of Group I in the reply filed on July 27, 2006 is acknowledged. Applicant has not set forth arguments regarding the traversal of the restriction requirement. The restriction requirement into these patentably distinct inventions is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 103

8. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

9. Claims 13, 14 17-20 and 44-46 are rejected under 35 U.S.C. 103(a) as unpatentable over Elward-Berry and Stahl, as further evidenced by Hen.

Elward-Berry discloses a water-based well completion/workover fluid comprising a saturated brine solution, a sized-salt and a water-soluble filtration additive that includes a copolymer formed from AMPS, acrylamide and/or 2-vinylpyrrolidone. (Abstract, col. 3, lines 4-8 and 43-62; col. 18, lines 47-54)

The saturated brine solution can contain potassium chloride, sodium chloride, sodium bromide, potassium bromide, potassium formate, cesium formate, cesium chloride or mixtures thereof; whereas the sized-salt can be potassium chloride, sodium

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chloride, sodium bromide, potassium bromide, cesium chloride, cesium formate, potassium formate or mixtures thereof. (Col. 2, line 58 to col. 3, line 8; col. 18, line 55 to col. 19, line 4)

In the examples, Elward-Berry discloses using DRISCAL D® (formed from monomers of AMPS, acrylamide and 2-vinylpyrrolidone) and TEK Mud® (comprising monomers of AMPS and acrylate) as the water-soluble copolymer dissolved (hydrated) in the aqueous composition. (Col. 7, lines 17-30) DRISCAL D® is a high temperature, filtration control polymer having a high molecular weight (1-10 million) and is a copolymer of AMPS and acrylamide. (See, e.g., Hen, Example 2 on col. 4, lines 34-37)

Elward-Berry does not disclose the weight percentages of the various monomeric components of the water-soluble copolymer in general, or of DRISCAL D® or TEK Mud® in particular. However, Elward-Berry, in col. 5, lines 13-20, does state that the water-soluble copolymer, containing AMPS, acrylamide and/or 2-vinylpyrrolidone, can be formed by known methods such as those taught by Stahl.

Stahl teaches water-soluble copolymers to be used in drilling, workover and/or completion fluids, formed from AMPS or a sodium salt thereof, vinylpyrrolidone (VP); acrylamide (Am); and/or acrylic acid or sodium acrylate. (Stahl, col. 8, lines 30-49; col. 21, lines 37-60; col. 22, lines 48-56; col. 35, lines 18-24; col. 41, lines 1-10; col. 42, lines 7-27) Stahl teaches that, in certain application there can be an advantage for the copolymer to have at least 20%, preferably 80-95% by polymer weight of Na-AMPS; 5-20% of VP; and 0-40% of the unsaturated amide. (Stahl, col. 23, lines 25-37; col. 37, lines 36-50)

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Stahl also teaches that these copolymers can be prepared by combining the monomer units to attain resultant polymers having a high molecular weight and high relative viscosity (K value) so that they can be used as fluid additives in harsh environments. (Stahl, col. 9, lines 26-40) Stahl further teaches that by varying the proportion of the monomer units and thus, their molecular weights, the resulting polymers can be used for other recovery processes of natural resources. (Stahl, col. 9, lines 41-52)

Stahl further teaches that a suitable difunctional or other multifunctional monomer, such as divinylbenzene or bis-methylene-acrylamide, can be employed as a crosslinking agent in the process of the in-situ polymerization of the aforementioned copolymer. (Stahl, col. 44, lines 37-40)

Many of the experimentals in Stahl disclose various examples of copolymers formed from combining AMPS or Na-AMPS with acrylamide (Am), VP and/or acrylic acid (AA) or a salt thereof. Among the Examples disclosing these polymers are Examples XXVII-XXX, XXXII, XXXV, XXXVII-XXXVIII, XLIII, XLIV, XLV, XLVI and L. Particularly, see Table LV on col. 107-108, and Table LVIII on col. 111-112, for drilling mud compositions including a VP/Am/Na-AMPS/AA copolymer having a 30/10/55/5 weight ratio in salt water and 30/5/55/10 in fresh water respectively. Also, Stahl discloses crosslinked VP/Am/Na-AMPS co-polymers in seawater drilling compositions having weight ratios of 35/25/40 and 30/15/55. (Stahl, Table LXIV on Col. 123-124)

Although physical properties recited in the claims (e.g. instant claim 44) for the copolymer, or composition comprising thereof, may not be specifically taught in Elward-

Berry or Stahl for disclosed copolymers, such as DRISCAL D® or Stahl's VP/Am/Na-AMPS/AA copolymer having a 30/5/55/10 weight ratio, because the polymers disclosed by Elward-Berry and/or Stahl are the same copolymers/compositions encompassed by the instant claims, then they must inherently possess the same physical properties, such as apparent viscosity, plastic viscosity and yield point.

Therefore, it would have been obvious to a person of ordinary skill in the art to use, as the filtration additive in Elward-Berry's well servicing fluid, DRISCAL D® (as disclosed by Elward-Berry) or one of Stahl's copolymer, such as the VP/Am/Na-AMPS/AA copolymer having a respective weight ratio of 30/5/55/10. One skilled in the art would have been motivated to, e.g., include Stahl's VP/Am/Na-AMPS/AA copolymer (that includes acrylic acid) in the drilling fluid because the Elward-Berry reference itself refers to Stahl as the reference that teaches how to produce the copolymers used as filtration additives in Elward-Berry's composition.

In addition, it would have been obvious to manipulate the amount of copolymer and alkali metal salt present in the composition (e.g. instant claim 46) to attain a preferred/desired composition for any particular future use. Applicant has not provided any showing or experimental evidence demonstrating the criticality of these percentages for the instant invention to patentably distinguish it from the prior art.

Thus, the claims, as amended, are unpatentable over Elward-Berry and Stahl.

10. Claims 13, 17-20 and 44-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murphey and Burns.

Murphey discloses a drilling fluid comprising a blend of a salt brine and one or more additives; wherein the salt brine is substantially free of insoluble solids and the additive can be a fluid loss control polymer or a soluble (hydrated in aqueous solution) viscosifying polymer, such as a copolymer of AMPS with acrylamide and/or acrylic acid. (Abstract; col. 1, line 56 to col. 2, line 2; col. 2, lines 19-39; col. 3, line 58 to col. 4, line 16)

Murphey discloses that the soluble salt that is used to provide salinity to the brine can be sodium chloride, sodium formate, potassium formate, cesium formate, sodium bromide or combinations thereof and in Examples 1-7 discloses compositions including a salt brine, water with blends containing the aforementioned AMPS copolymer. (Col. 3, lines 35-41; Examples 1-7)

In Tables 2 and 4 on col. 7-8, Murphey discloses samples of these compositions containing a salt brine and the AMPS copolymer having a yield point greater than 5-lb./100 ft²; an apparent viscosity of at least 20 cps and a plastic viscosity greater than 15 cP. (Samples Fluids A-G at rpm greater than 30)

Examiner notes that, although Murphey does not specifically disclose the weight percentages of the monomers of the AMPS copolymer composition, Murphey discloses that the blends of copolymers used in Examples 1-7 were prepared in accordance with Burns. (Table 1, col. 6, lines 40-41 and 53-55)

Burns teaches blends including a water-soluble (hydrated in aqueous solutions) AMPS copolymer that are used to increase the viscosity of aqueous acidic solutions, wherein the blend can contain one or more water-soluble copolymer having various

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ratios of AMPS or a salt thereof with acrylamide or acrylic acid, and wherein the preferred weight ratios for the acrylamide/(AMPS or Na-AMPS) copolymer are 50:50 and 30:70. (Burns, Abstract; col. 1, lines 30-58; col. 2, lines 23-32; Example II)

Burns further teaches that a blend including one or more of the aforementioned AMPS water-soluble copolymers can produce a synergistic increase in the viscosity of an aqueous acidic solution when compared to other viscosifying additives that contain an AMPS copolymer. (Burns, col. 1, lines 55-67) Consequently, these blends are particularly suitable for hostile environments, such as at high temperatures, hard brines and at a pH as low as 1, that require highly viscous fluids. (Burns, col. 3, lines 1-26)

In addition, Burns teaches that the water-soluble copolymer can be cross-linked and can contain 0-5% of a cross-linking agent (col. 2, line 41-67; Table 1 on col. 2); and further teaches examples wherein the copolymer blend provide an acidic aqueous composition with an apparent viscosity of 21, 22, 24 or 30 (Table II on col. 4-5).

Accordingly, it would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to use Burns AMPS copolymer blend as the viscosifying polymer additive in Murphey's drilling fluid composition. It would have been within the purview of one in the art to do so in order to attain a resultant drilling fluid that is more effective when used in hostile environments such as at high temperatures, hard brines or low pH as taught by Burns.

Although Murphey and Burns may be silent in regards to other physical property limitations of the copolymer/composition recited in the claims (e.g. claims 44 and 46), because Murphey and Burns disclose the same copolymers and compositions

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comprising thereof that are encompassed by the claims, then Murphey and Burn's copolymers/compositions must inherently possess the same physical properties as those recited in the claims.

In addition, it would have been obvious to manipulate the amount of copolymer and alkali metal salt present in the composition (e.g. instant claim 46) to attain a preferred/desired composition for any particular future use. Applicant has not provided any showing or experimental evidence demonstrating the criticality of these percentages for the instant invention to patentably distinguish it from the prior art.

Thus, the claims are unpatentable over Murphey and Burns.

Response to Arguments

The Double Patenting Rejections, Claim Objections and 35 U.S.C. 112 Rejection (items 10-14, 16 and 17 of OA)

11. Applicant's arguments in Response with respect to the captioned objections and rejections have been considered but have become moot due to the withdrawal of these objections and rejections in view of Applicant's amendment to the claims in Response.

The 35 U.S.C. 102 Rejection over Loftin (item 19 of OA)

12. Applicant's arguments in Response with respect to the 35 U.S.C. 102(b) rejection as anticipated by Loftin have been considered but have become moot due to the withdrawal of this rejection in view of the amendment to the claims in Response.

The 35 U.S.C. 103 Rejection over Elward-Berry and Stahl (item 21 of OA)

13. Applicant's arguments in Response with respect to the 35 U.S.C. 103(a) rejection as unpatentable over Elward-Berry and Stahl (as further evidenced by Hen) have been fully considered but deemed unpersuasive.

Applicant's arguments concerning the references individually not disclosing all the limitations of the claims are midirectional. This 103 rejection is over Elward-Berry and Stahl in combination. Whether Elward-Berry *by itself* discloses the copolymer containing carboxylate group functionality, or the recited physical properties, is not material to whether the claimed invention is patentably distinct from the copolymer composition taught by Elward-Berry and Stahl. As shown above, in combination, the prior art of record teaches a composition that includes a copolymer containing carboxylate and sulfonate group functionalities and cesium formate (Elward-Berry and Stahl). One cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

In addition, Applicant's declaration submitted with Response does not provide data showing, e.g., unexpected results demonstrating patentable distinctiveness of the claimed invention over the copolymer composition taught by the combination of Elward-Berry and Stahl.

Thus, the claims, as amended, remain unpatentable over Elward-Berry and Stahl.

The 35 U.S.C. 103 Rejection over Loftin and Patel (item 22 of OA)

14. Applicant's arguments in Response with respect to the 35 U.S.C. 103(a) rejection as unpatentable over Loftin and Patel have been considered but have become moot due to the withdrawal of this rejection in view of the amendment to the claims in Response.

The 35 U.S.C. 103 Rejection over Murphey and Burns (item 23 of OA)

15. Applicant's arguments in Response with respect to the 35 U.S.C. 103(a) rejection as unpatentable over Murphey and Burns have been fully considered but deemed unpersuasive.

As was the case regarding the response to the rejection over Elward-Berry and Stahl discussed above, Applicant's arguments concerning the Murphey and Burns references individually not disclosing all the limitations of the claims are midirectional. The instant 103 rejection is over Murphey and Burns in combination. Whether Murphey *by itself* fails to teach all the limitations regarding the copolymer containing a carboxylate group, the composition containing cesium formate and/or or the recited physical properties (e.g. molecular weight), is not material to whether the claimed invention is patentably distinct from the copolymer composition taught by Murphey and Burns.

As shown above, Murphey and Burns, in combination, teach a composition that includes a copolymer containing both carboxylate and sulfonate group functionalities

and cesium formate. One cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

In addition, Applicant's declaration submitted with Response does not provide experimental data showing, e.g., unexpected results, demonstrating patentable distinctiveness of the claimed invention over the copolymer composition taught by the combination of Murphey and Burns.

Thus, the claims, as amended, remain unpatentable over Murphey and Burns.

Conclusion

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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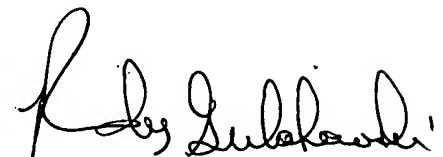
the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John J. Figueroa whose telephone number is (571) 272-8916. The examiner can normally be reached on Mon-Thurs & alt. Fri 8:00-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on (571) 272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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